

# Variation in anatomical characteristics in leaves of pecan seedstocks from Mexico and the United States

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## Abstract

Leaf anatomical traits of Mexican and U.S. pecan [*Carya illinoensis* (Wangenh.) K. Koch] seedstocks grown in a single location were studied to determine patterns of ecogeographic variation within the natural range. Stomatal density was uniform among open-pollinated seedlings of a common maternal parent, with two-fold differences in stomatal density separating some seedstocks. There was an inverse relationship between stomatal density and epidermal cell density. Stomatal density and stomatal index of Mexican seedstocks were related to longitude and annual precipitation of origin. Stomatal density increased along the longitudinal gradient towards the east coast of Mexico: seedstocks originating from areas on the east coast of Mexico had greater stomatal density than seedstocks originating from the drier areas on the west coast. Stomatal density and stomatal index did not follow a pattern along latitude or longitude in the U.S. seedstocks. A trend in isotopic carbon (<sup>13</sup>C) discrimination was distinguished in Mexican seedstocks, thus suggesting greater water use efficiency in pecan trees from areas with reduced annual precipitation.

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